



## INTRODUCING THE SUPER NES POWERPAK

> **BRIAN PARKER** *bunnyboy*

Recently there has been a flurry of SNES products, and many people have speculated that I have been working on an SNES PowerPak. And of course the answer is YES! After a long development process and a longer than expected production process it is finally ready to be released. Yes it should have been done sooner, but waiting for some of the tech has made it a better product.

In case you don't know what the PowerPak is, this is a physical cart for your NES or SNES system. You load all your (legal of course) ROMs from your computer onto a Compact Flash memory card. Then you plug that card into your PowerPak. When you start the console you get a file browser to select which game to play. Wait a few seconds and it loads right up!

Check out this old post with such a low number! <http://www.nintendօage.com/forum/messageview.cfm?catid=24&threadid=1238> Applying Dan's same questions and some new ones to this exciting new product:

**[NA]:** What is the nature of the technology used in the cartridge: To what extent were you able to take advantage of existing parts and technology or was the whole cartridge pretty much a custom job?

**[BP]:** Like all my products, all the chips are standard production hardware, no custom chips, but the board and software is all unique. Nobody has used the SNES to program an FPGA. Overall I knew everything would eventually work because it did on the NES, but it was still a complex design. No other processors are used; the SNES controls everything.

**[NA]:** In layterms, how does the cartridge operate? Can you describe the file

access interface or menu?

**[BP]:** The cart starts up using the on-board boot ROM. It programs the FPGA chip and loads files off of the CF card to display the directory tree. After choosing a game the options screen is shown where Game Genie codes can be entered and a battery RAM file chosen. The game is loaded from the CF card into on-board SDRAM. That SDRAM is the biggest change over the NES PowerPak and over any other current SNES product. SDRAM is fast and big, so loading time is short even with the bigger SNES games.

**[NA]:** There have been attempts by the nesdev community to undertake similar projects (a reprogrammable cart) with different levels of success. What makes this attempt stand out? In what ways have other attempts fallen short? How does this compare to the Atari Cuttle Cart if you're familiar with it?

**[BP]:** There are a few other SNES flash cards that follow different ideas. Totek uses Flash ROM, so it is slow to load a game. Mash-Mods updated that idea by using a USB port instead of a parallel port interface. The QuickDev16 uses SRAM instead of Flash so it is fast to upload, but needs the USB connection every time the system is turned on. Great for developers but not consumers. (More product details are shown below.) Why am I advertising other companies? Because mine is better of course! I am not considering products with vague specs that have been delayed for years like anything from NeoFlash. I am also not considering copiers which are no longer made. They have benefits in their place but in general are not as easy for consumers.

Like the NES PowerPak, a project like this also takes lots of time and money.

**RETROZONE**  
BY: BUNNYBOY

Again the proto board prices was easily over \$1K. Even with all the shared code from the NES system the SNES PowerPak was in serious dev for around 9 months.

The SNES PowerPak is far more complex than the Cuttle Cart, and also more complex than the Cuttle Cart 2. The large SNES game size adds complexity, and there are enough mappers to need an FPGA instead of a smaller cheaper CPLD. The larger chip also gets into voltage issues that add more work to the design. Not that the Cuttle Carts aren't impressive, anything that is programmed to use FAT format is hard! However there is a new Atari design called the Harmony cart that looks amazing. It is enough to make me never think about an Atari PowerPak. Unfortunately their architecture will not work on any system more complex than the Atari.

**[NA]:** Can you provide details about your development time and things that affected it?

**[BP]:** After finishing the NES PowerPak I was already thinking about other systems. However the big game size needed a new architecture. There was still so much to do for the NES anyways. Finally I had time and money to conquer another system.

- Feb 2009 - Real work started. Did some programming on SNES emulators and designed the first board.

- Mar 2009 - First proto arrives, mostly works. All the FAT file sys-

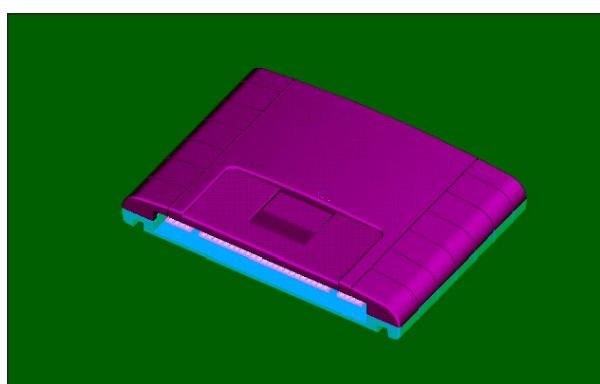
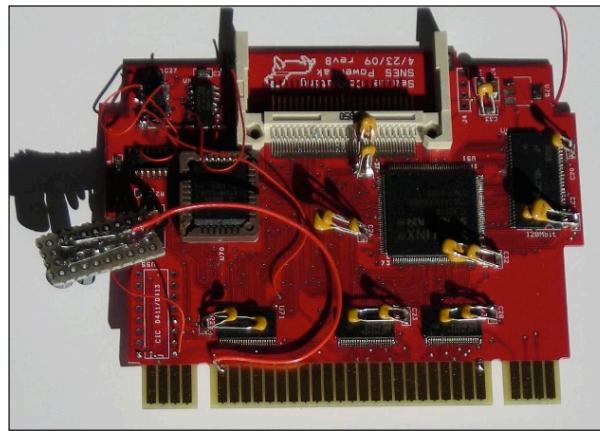
	SNES PowerPak	Super Flash Cart 64M and Programmer	SNES Retro Flash Cart and Programmer	Quickdev16
From:	<a href="http://www.retrousb.com">www.retrousb.com</a>	<a href="http://www.totek.com">www.totek.com</a>	<a href="http://www.mash-mods.com">www.mash-mods.com</a>	<a href="http://www.optixx.com">www.optixx.com</a>
Storage:	as big as your CF card, 32MB avail.	64Mbit	32Mbit	16Mbit
Games:	many thousands	four	one	one
Size:	128Mbit	48Mbit	32Mbit	16Mbit
Type:	CF card	Parallel port	USB	USB
Time:	seconds	minutes	minutes	seconds
Battery:	1Mbit, save back to CF card	1Mbit, but only for one game at a time	32KB	none
Plastics:	brand new custom case	used case	used case	none
Price:	\$125 for cart, add CF card	\$95, add parallel cable and lockout	\$115, add USB cable	\$120, add USB cable

tem handling ported over pretty easy. Got a game to run but it was very flaky. Decided to work on a new board with more SDRAM and a different FPGA.

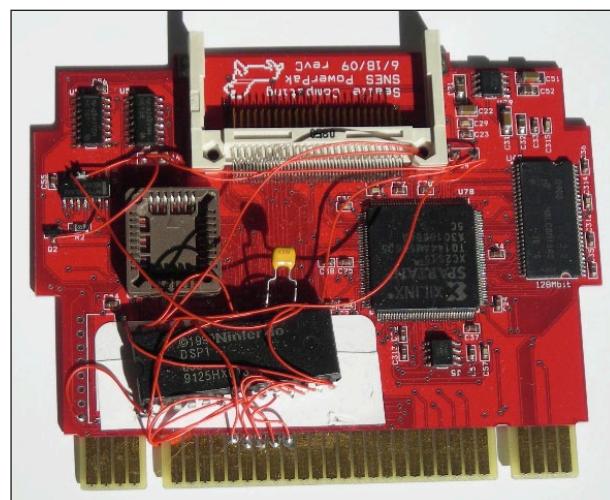


- April 2009 - That April Fools post was the real first prototype, messed up a bit in Paint. The original picture was actually up on my public website until Oct when it was discovered.

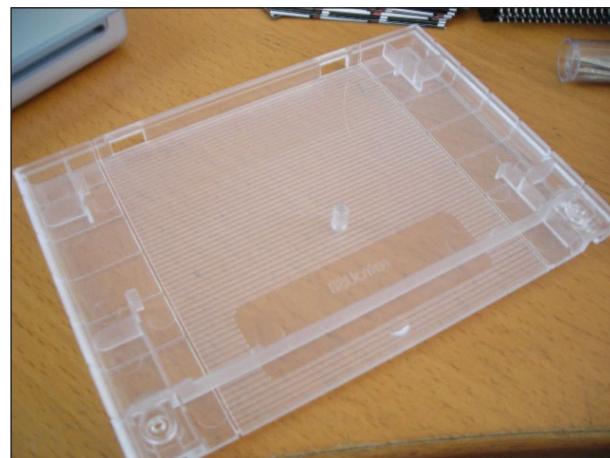
- May 2009 - Second prototype arrived, completely fails. I ripped apart 4 boards (~\$700) over the next couple months trying to find out why. Never did, huge waste of time and money. Yes I am bitter! Mold for the SNES cart plastics was also ordered here.



- July 2009 - Back new board with first design. One day the games were flaky, then suddenly the next day everything was running perfectly.



- Aug 2009 - Final boards ordered. At this point I was expecting to be selling everything by Oct. Chinese customs had a different idea... Prototype clear SNES plastics arrive, final red plastics ordered.



- Sept 2009 - Lots of waiting!

- Oct 2009 - Final boards arrive, Navi jumps on them immediately. Final carts arrive. Piles of SNES carts as donors for DSP1 chips arrive. This is why Erma was built!

You can see that it takes 4-12 weeks between ordering something and it arriving. This is a big reason why I do not do pre-orders. There is simply no fixed schedule, and huge delays are possible if there is a problem.

**[NA]:** Will there be built in Game Genie support, like the NES PowerPak?

**[BP]:** Yes, support for 5 codes is included. Loading codes from a text file is also included. I added that feature to the NES PowerPak because I was tired of entering in codes to test this system.

**[NA]:** Any capability issues with the SNES PowerPak?

**[BP]:** Some SNES carts include expansion chips inside,

**> snes powerpak, cont.**

which are far more complex than NES mappers. Putting them into an affordable system is just not possible yet. The DSP1 is one of those chips, however the SNES PowerPak includes a slot for a real DSP1 from a donor cart.

**[NA]:** Any compatibility issues with clones?

**[BP]:** Amazingly not that I have found! It seems to run fine on both SNES clones I have, the RetroDuo and FC Twin. I would expect it will work on the new 3 console clones too.

**[NA]:** Will it feature product updates like your previous products?

**[BP]:** Yes! If needed... The system can be updated or new features added. Most likely it now support most of the games it ever will. Future additions could be BS-X game support, or an audio player.

**[NA]:** Most of your projects seem to be one man operations? Did anyone help you with the SNES PowerPak?

**[BP]:** Again this was all my design, I don't know many hardware people! The plastics was all done by Misha Yong at www.

logicdesignworks.com who has done all the RetroPorts and packaging. He created a case which fits in Nintendo systems from all regions and clones, while taking design cues from both PAL and NTSC systems. Hopefully this case will be used in future SNES products. International testing was done by James Todd aka Zzap. He has one of the last prototypes. If it doesn't run on your PAL system, blame him!

**[NA]:** Any plans to release a PowerPak for other consoles?

**[BP]:** Eventually I hope to do N64, but that is far in the future (sorry Martin). It is a whole host of new problems. And there are even more exciting NES and SNES products coming first!

Remember that this is a new complex product. I have done testing, but unknown bugs should always be expected. Everything is updateable so any bugs can be fixed, however anyone expecting a perfect product should wait a bit until more reviews are out. No, I am not working on a Game and Watch PowerPak :)



## THE REASON I COLLECT

> **RICKY MAHLER** *gameboyricky*

While everyone has their own reason for collecting games, my reason is somewhat more of a personal and perhaps even a therapeutic one. Growing up I was very close to my father and strived to be just like him. On top of that, my dad's profession was a pretty unique one; he was a Major League Baseball pitcher. He played 13 seasons in the Major Leagues, spending most of them as an Atlanta Brave. While having a dad that plays major league baseball is an awe-inspiring thing, this also often caused him to be away. My dad got into the routine of having a brand new NES game for me every time he came home. He had an intellivision growing up and loved playing it as a kid. He introduced me to video games as well, by purchasing a Nintendo Entertainment System for me. I would often attempt to get him to play with me but he usually preferred just to watch. I could get him to play RBI baseball 2 and 3, though!

In 1989, he signed a two-year contract to play for the Cincinnati Reds. By this time, I had quite a library of games. When we moved close to Cincinnati, dad would take me to some local arcades around the area. I was a huge Ninja Turtles fan at the time, just like every other kid in the world, and I remember seeing the brand new Konami Teenage Mutant Ninja Turtle arcade machine in an arcade we went to. I immediately headed for it but then noticed there was a line to play it (probably about 8-9 kids long). It was the only game with a line but I didn't care. Once I saw it, it was the only game I wanted to play. My dad waited with me and was going to play also until more kids lined up behind us (He didn't want to take another kid's spot). Every time we went back to that arcade, there was always a wait to play it. On my next birthday, I turned 8 years old and after all my other presents were handed out and opened, my dad told me that I had one more. A man then walked into our house pushing a BRAND NEW TMNT ARCADE MACHINE. I couldn't believe it. We immediately plugged it in and fired it up! There was a red button installed under each coin slot (4 total). Each time you pressed this button it gave you a credit. My mom later told me that

my dad paid over \$8,000 for this arcade. I'm not sure who exactly he contacted or what distributor delivered it but at the time I didn't care. I still have this arcade cabinet today.

Years later, my family moved to Florida and my father had retired from playing and was working in the New York Mets organization. I got a baseball scholarship in Texas and before I moved, I gave all my old games to my little autistic brother Tyler. I continued to stay very close to my dad and we'd talk on the phone everyday. He'd fly me home for the holidays and summer, and I had planned on moving back after graduating. During my sophomore year in college though, I was woken up and told that my dad had suddenly died of a heart attack. I didn't believe the news because I had spoken to him only 6 hours prior and he seemed fine. Distressed and astounded, I got on the first plane I could and headed to Florida. Once I arrived, my family was watching "SportsCenter" and as if on cue, the anchorman announced that my dad had died today at the age of 51. I remember seeing my little brother Tyler and how perplexed and distraught he appeared to be. My dad was one of the very few people that my brother would allow himself to open up to, and because of his neurological disorder, he had a hard

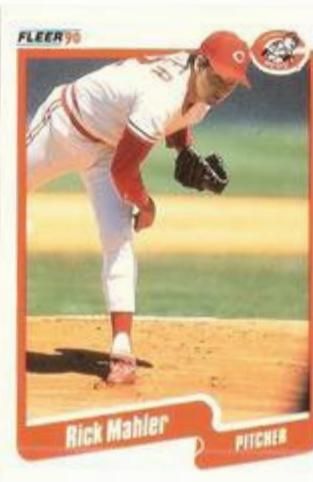
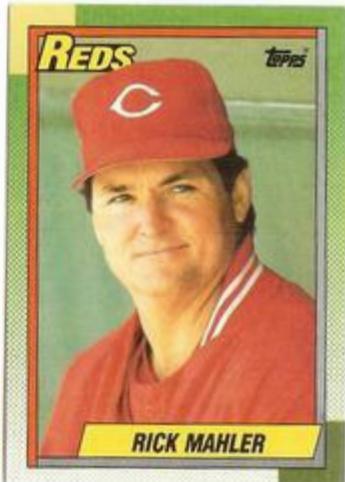
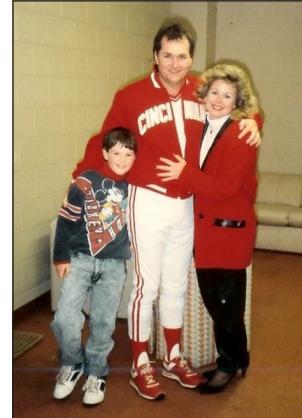
time understanding why my dad had suddenly died. I stayed close to my brother and remember sitting there with him quietly. He had a Nintendo hooked up in his bedroom and he played it almost daily. I often went into his room and sat quietly on his bed watching him play. Weeks went by and I stayed with my family, and my brother appeared to still be disturbed. I decided to take him to "EB Games" and buy him some Nintendo 64 game cartridges. When we arrived and began looking through the small variety, I saw an excitement and spark in him that I feared I'd never see again. We bought 4 N64 carts and a handful of Gameboy carts. On the way home he asked me, "Can we come back here?" I told him that we could. About a week later, I decided to take him to 3 different game stores in one day and together we ended up buying about 15-20 loose game cartridges. I started to notice that I also really enjoyed going out and buying these games for some reason. I eventually figured out that every time I'd buy an old game, it would give me a certain feeling. It would remind me of my dad and take me back in time. I got a special warmth from it. I decided to make buying old games with my brother a weekly occurrence. After about 2 months, I returned to Texas to finish up school. I found my



## PAGE 6

*> why i collect, cont.*

self still going to Gamestop or EB Games to buy older games to give to my brother ... and buy for myself, too! I began to build up quite a collection. I started looking for games online and buying games on eBay. Today my brother has around 800 games and I have a few thousand. Buying these games has brought my brother and I a lot closer and given us something to talk about. I believe video game collecting got us through those tough times and I can't help but smile when I pick up a game remembering how I felt the first time my dad gave me a copy of the same one all those years ago.



## THE ART OF BEAD ART

> ROBBIE PACANOWSKI *dr. robbie*

Have you ever wanted an easy and cheap way to display your 8-bit pride? Something retro, but something simple. Something a little dorky, but also won't get you beat up by your neighbor. If so, let me welcome you to the art of bead art. [Editor's note: we cannot guarantee that bead art won't get you beat up by your neighbors. Create at your own peril!]

The main items you're going to need for this project are Perler beads and some peg boards. For both of these I suggest getting them off of eBay. There are quite a few sellers that allow you to buy the beads in bulk. I would recommend getting one of the lots that allow you to choose your own colors. If you're thinking about making a few of these, remember that the main colors you will most likely be using are Black, White and Tan in that order, so plan your order accordingly. For the peg boards, I would advise getting the larger ones that link together. These are a million times easier to use than the small boards and allow you to make bigger projects much more quickly, and they'll look nicer, too.

In addition to these, you're going to need an iron, wax paper, and access to NES sprites. For the sprites, there are a few sites that I keep bookmarked for reference:

The Sprite Database (<http://sdb.drshnaps.com>) and NES-SNES Sprites (<http://www.nes-snes-sprites.com>).

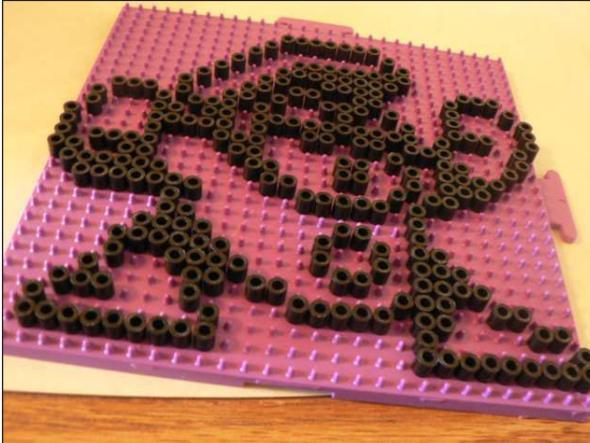
You can also copy your own sprites through an emulator. No matter how you get the sprite, you're going to want to copy it to a picture program (like Paint) so that you can enlarge the picture and see it better for use as a guide.

Once you have everything, the process is pretty straightforward. Every pixel corresponds to one bead placed on the peg board. There aren't really any master techniques to placing beads, but personally, I like to place the outlining colors first, followed by the least used color, and then the primary color last. It just seems to go quicker for me this way, but you can do whatever you want really. Tweezers can also help here for misplaced beads that are annoying to get out.

After you have all of your beads placed, the next step is melting them together so they form a single piece of plastic. Place wax paper over the beads so they don't melt to the iron (this is NOT fun) and iron the beads. Make sure that all of the beads melt sufficiently to the point where they are stuck to each other or you'll end up with loose beads coming out.

When it looks good, peel off the wax paper and then wax/iron the underside of the object. This allows for it to be sturdier and less likely to break down the road. Let it cool and you now have some great decoration that will be sure to start some conversations. These are great as wall decoration, rearview mirror danglers, or even as a necklace (okay, so that last one might get you beat up by your neighbor).

Advanced Tip: Once you get pretty good at this, try some glow-in-the-dark ideas to add a little spice to your art.



## SUPER STARFOX WEEKEND: STARWING COMPETITION

>EVAN GOWAN *badinsults*

The Super StarFox Weekend was a contest run by Nintendo to promote the release of StarFox. A similar contest was run in Europe. This game was produced in small quantities for the sole purpose of the contest, making this one of the rarest SNES games released.

The Super StarFox Weekend competition was held at 1500 - 2000 locations in the United States during the weekend of April 30 - May 2, 1993. The purpose of the competition was to promote the release of StarFox, which at the time was the largest single release in video game history (with some 1.7 million carts available worldwide at launch). The hype was likely deemed necessary by Nintendo to recoup the investment made in the development of the Super FX chip, which had been in R&D since before the SNES was even released. This cart has been known to collectors as "StarFox Super Weekend" for years, though officially this is incorrect and the proper title is "Super StarFox Weekend".

### The Cartridge

The StarFox competition game was used in many countries. There is an US NTSC version titled "Super StarFox Weekend" on the label. The title within the game is "StarFox Official Competition". There are two known PAL versions - English and German. The English version is simply titled "Starwing Competition" on the cart, and also within the game. The German version is titled "Starwing Offizieller Wettbewerb" (literally "Starwing Official Competition"). The Starwing Competition carts also came with a manual, of which two are known to exist. Both cartridge labels state "Not For Resale."

After the competition was finished, the cart was released in several ways. The main way this cart came into public hands was through the Nintendo Super Power Supplies Catalog, a supplement to subscribers of Nintendo Power. The Super StarFox Weekend cartridge was included in the Fall/Winter 1993 edition of the catalog, listed at \$45. That is a far cry from the \$200 I paid for my cart last year! Other ways that people allegedly acquired the game include from the Nintendo employees store, and from the stores after the competition was over (which likely violated the terms of the contest, as most Nintendo promotional materials are meant to be returned). I do not have any information on the PAL versions of this game,



so I can only assume similar distribution methods applied for it as well. Assuming that the game was made specifically for the competition, there may have been only 2000 Super StarFox Weekend carts manufactured, possibly making this rarer than the Donkey Kong Country Competition Cartridge.

### The Game

The StarFox competition is a timed version of StarFox, where you have four minutes (excluding cinemas) to get as high of a score as possible. The game lets you choose a control scheme, so you are not stuck with the default scheme. Points are scored by landing damaging shots, destroying enemies, and bonuses for powerups and health at the end of the level apply. There is no pause functionality.

There are three levels in the competition cartridge. The first two levels are shortened versions of the Corneria and Asteroids levels. These levels also contain more enemies than in the equivalent versions of the levels in StarFox. The Corneria level features the start of the regular stage (where you can go through loops to get a laser powerup) and the final part where there are a series of buildings you can fly through if you are skilled enough. The Asteroids stage seems completely redesigned, with elements from different parts of the standard level. The final level is a special level designed specifically for the competition cartridge, featuring a space level where you go through rings. Enemies killed in this level give bonus points of 100, 500, 1000, 3000 and 5000 points. The level endlessly loops until you run out of time. The final stage uses the same music as the Space Armada level in the standard game. As for timing, provided you do not die, it takes about two minutes to finish the Corneria, one and a half minutes to finish the Asteroid level, leaving you with around 30-40 seconds in the final rings level. In order to have any chance to play the final level, you have to use your bombs on the two bosses to kill them quickly.

The theoretical maximum score according to the game designs was about 172,000 points. Most of the store winners got between 130,000 and 145,000 points. Early 90's Nintendo World Champion Jeff Hansen got a score of 144,620. Videos on YouTube show much higher scores, but this is due to emulation issues with the Super FX chip in older emulators such as



ZSNES that cause the clock to run slower than it should. If you want to play this game without "cheating" on an emulator, you have to use bsnes.

### Points

- Hit enemy - 1 point
- Regular Enemy Destroyed (including meteors) - 250 points
- Destroy boss - 10,000 points
- Gold health rings - 1000 points
- Powerups (bombs, double lasers) - 1000 points
- Go through ring - 1000 points
- Score bonus (at the end of the level) - 100 points for each percentage
- Bomb Bonus (bombs remaining at the end of the level) - 1000 points each

> *super starfox, cont.*

- Shield bonus (assuming full shields)
  - 8000 points
- Perfect Bonus (for getting 100% in a level) - 20,000 points

## American Competition

The competition was held at various retail chains including Toys 'R Us, Electronics Boutique, Blockbuster, Media Play and Kay-Bee. Employees who worked at the event got a nifty yellow apron to wear. The goal of the contest was to score the highest amount of points at the location during the weekend. All participants got a StarFox pin. Participants who got over 70,000 points received a StarFox/Super FX t-shirt. The winner at each store got a nifty bomber jacket, with the Nintendo logo on the front, and the Super StarFox Weekend logo on the back. According to the card that came with the cartridge ordered from the Super Power Catalog, most of the store winners got between 130,000 and 145,000 points.

The grand prize of the Super StarFox Weekend was the choice of a trip for four to London, Paris, Sydney or Tokyo, or a lump sum of \$15,000. The winner was picked at random among the store winners. The grand prize went to Trevor Petersma of Garland, Texas, who decided to take the lump sum of \$15,000.

## Canadian Competition

In 1993, the StarFox competition cart was used in the National Nintendo Championships in Canada. Little information is available about this event, except that the finals were held in Montreal in Fall 1993. The preliminaries took place out of a Nintendo branded truck, and there were prizes for different age groups. The prizes were similar to the American competition, including StarFox shirts and a plaque. Games at the competition included a Super Scope game, various sports and fighting games and possibly a Super Mario Bros. game.

## European Competition

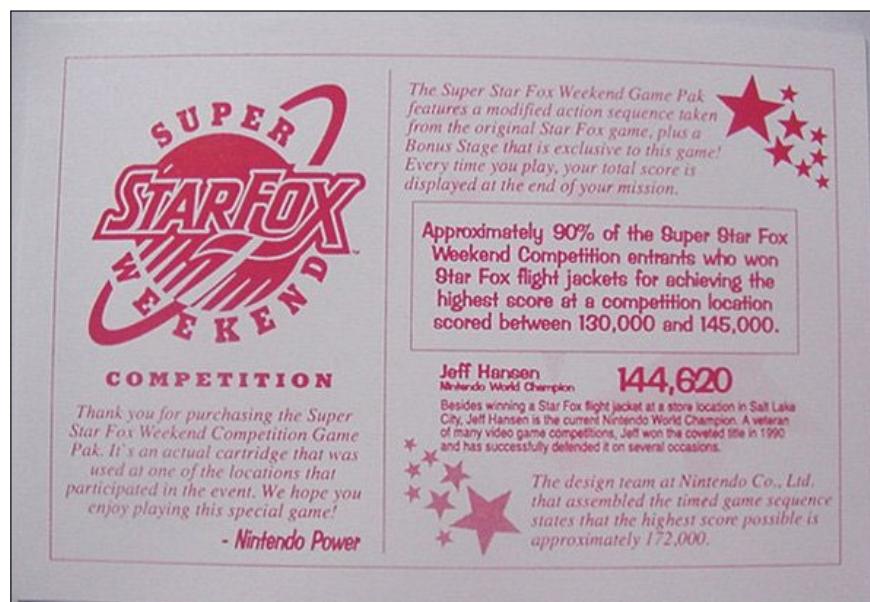
I'll admit, I could not find any information on the competition in Europe. The competition definitely took place in Germany and England, and possibly other countries. According to this fanzine ([http://www.sky-topia.com/games/cacg/cacg12\\_13.html](http://www.sky-topia.com/games/cacg/cacg12_13.html)) published by Nathan White, the British competition took place on May 29th, 1993.

## The Wrap

This cartridge is one of the most rare items created for the Super NES. I personally paid about \$200 for this game, and it only pops up occasionally on eBay. Just in case you were wondering, after writing this article, I played through the game three times, achieving scores of 79,126, 86,831 and 92,367. I know, I am not in the category of a store winner, but I would have at least

won a T-Shirt.

[Editor's note: For scans, more images and everything SNES check out Evan's site, SNESCentral.com!]

**SUPER STARFOX WEEKEND**

**COMPETITION**

Thank you for purchasing the Super Star Fox Weekend Competition Game Pak. It's an actual cartridge that was used at one of the locations that participated in the event. We hope you enjoy playing this special game!

- Nintendo Power

**The Super Star Fox Weekend Game Pak** features a modified action sequence taken from the original Star Fox game, plus a Bonus Stage that is exclusive to this game! Every time you play, your total score is displayed at the end of your mission.

Approximately 90% of the Super Star Fox Weekend Competition entrants who won Star Fox flight jackets for achieving the highest score at a competition location scored between 130,000 and 145,000.

**Jeff Hansen**  
Nintendo World Champion  
Besides winning a Star Fox flight jacket at a store location in Salt Lake City, Jeff Hansen is the current Nintendo World Champion. A veteran of many video game competitions, Jeff won the coveted title in 1990 and has successfully defended it on several occasions.

**144,620**

The design team at Nintendo Co., Ltd. that assembled the timed game sequence states that the highest score possible is approximately 172,000.



## SMARTBOY GAMES

> OTTO HANSON *limbofunk*

My first encounter with SmartBoy games came sometime around late 2005 while I was nonchalantly browsing Jason Smith's (NationalGameDepot's) website and happened upon a picture of two bizarre looking NES games. Both games were in rental cases that had 'QuikPlay' game instructions pasted to the front. They looked quite a bit different from a normal licensed release. On the front label of both games, Super Mario Bros 3 and Teenage Mutant Ninja Turtles, 'Smart Boy' was placed prominently in bold font, making the actual title of the game seem unimportant in comparison. What were these games and where did they come from? I had to find out, and here are the results of my research.

These games were manufactured by some random company in South America and distributed by a company named Video Store Services throughout the late 80s and mid 90s. Video Store Services specialized in selling fixtures and other miscellaneous items to both video rental chains and independently owned stores. SmartBoy games were created with the intent of offering stores a cheaper alternative to having the 'popular titles' rather than purchasing their officially licensed counterparts. Independently owned rental stores who decided to purchase the one page QuikPlay instructions were more apt to carry these cartridges than the bigger store chains, which is likely why so few of these have surfaced. From a brief conversation with the original owner of Video Store Services, these cartridges did not sell very well and were eventually dropped from their product catalog. The



### SMARTBOY GAMES (at a glance)

Year: late 80s - mid 90s

Manufactured: South American Slaves

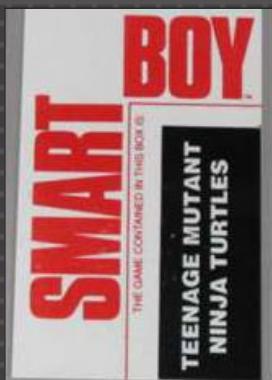
Distributed: Video Store Services

Games: Arkanoid (2)  
Super Mario Bros. 2 (2)  
Super Mario Bros. 3 (2)  
Teenage Mutant Ninja Turtles (2)  
Tengen Tetris (6)



company has relocated their warehouse several times since then so any possible overstock of these titles were either liquidated or just thrown away. While these are essentially nothing more than another line of pirated games, they do have a traceable history with an actual purpose behind them. This makes them a unique niche for collectors to go after.

To date, five different SmartBoy titles that have surfaced, and the quantities of those in collectors' hands (through my own personal data collecting since I first became aware of them) are listed above.



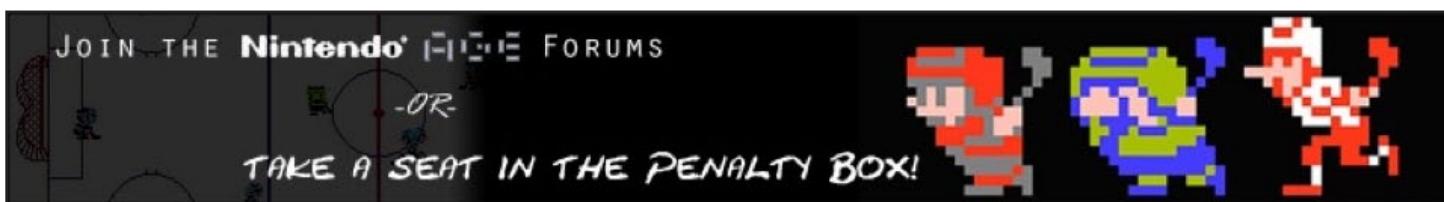


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[www.NintendoAGE.com](http://www.NintendoAGE.com)

720	4	0	Baseball Simulator 1.000	5	0	Bugs Bunny Birthday Blowout	6	0
1942	8	0	Baseball Stars	8	0	Bugs Bunny Crazy Castle	7	0
1943	7	0	Baseball Stars 2	13	+1	Bump 'N Jump	5	+1
10 Yard Fight	4	0	Bases Loaded	3	0	Burai Fighter	5	+1
3-D World Runner	4	0	Bases Loaded 2	4	+1	Burgertime	8	0
8 Eyes	5	+1	Bases Loaded 3	4	+1	Cabal	4	0
Abadox	5	+1	Bases Loaded 4	11	0	Caesar's Palace	3	0
Action 52	90	+11	Batman	6	+1	California Games	6	0
AD&D Dragonstrike	13	0	Batman Return of the Joker	10	+1	Caltron 6 in 1	138	-7
AD&D Heroes of the Lance	6	0	Batman Returns	6	+1	Captain America	9	+1
AD&D Hillsfar	19	-2	Battle Chess	4	0	Captain Comic	8	+1
AD&D Pool of Radiance	12	+1	Battle of Olympus	6	0	Captain Planet	7	+1
Addams Family	6	+1	Battleship	7	0	Captain Skyhawk	4	0
Adventure Island	8	0	Battletank	4	0	Casino Kid	5	+1
Adventure Island 2	11	0	Battletoads	11	0	Casino Kid 2	18	+2
Adventure Island 3	19	-1	Battletoads & Double Dragon	21	+1	Castelian	7	+1
After Burner	5	0	Bayou Billy	4	+1	Castle of Deceit	47	+9
Air Fortress	3	-1	Bee 52	8	-2	Castle of Dragon	5	+1
Airwolf	4	0	Beetlejuice	7	+1	Castlequest	4	0
Al Unser Jr's Turbo Racing	4	0	Best of the Best	15	+3	Castlevania	9	0
Alfred Chicken	20	+6	Bible Adventures	9	0	Castlevania 2	6	0
Alien 3	6	-3	Bible Buffet	25	+1	Castlevania 3	11	0
Alien Syndrome	4	0	Big Bird's Hide & Speak	4	0	Caveman Games	7	0
All Pro Basketball	4	+1	Big Foot	5	0	Challenge of the Dragon	34	+2
Alpha Mission	4	0	Big Nose Freaks Out	10	-3	Championship Bowling	4	0
Amagon	4	0	Big Nose Freaks Out (Aladdin)	20	+3	Championship Pool	7	0
American Gladiators	5	0	Big Nose the Caveman	8	+1	Cheetahmen 2	789	0
Anticipation	4	0	Bill & Ted's Excellent Adventure	5	+1	Chessmaster	5	+1
Arch Rivals	4	0	Bill Elliot's NASCAR Challenge	5	+1	Chiller	27	-3
Archon	6	0	Bionic Commando	7	+1	Chip N' Dale Rescue Rangers	8	0
Arkanoid	9	+1	Black Bass	5	0	Chip N' Dale Rescue Rangers 2	49	+4
Arkista's Ring	8	+1	Blackjack	25	-7	Chubby Cherub	14	+1
Astyanax	4	0	Blades of Steel	4	0	Circus Caper	4	0
Athena	4	0	Blaster Master	5	0	City Connection	4	0
Athletic World	5	-2	Blue Marlin	9	0	Clash at Demonhead	4	0
Attack of the Killer Tomatoes	8	+1	Blues Brothers	11	0	Classic Concentration	7	0
Baby Boomer	26	-1	Bo Jackson Baseball	5	0	Cliffhanger	12	+1
Back to the Future	4	0	Bomberman	9	0	Clu Clu Land	6	-1
Back to the Future 2 & 3	6	+1	Bomberman 2	25	-3	Cobra Command	4	0
Bad Dudes	5	+1	Bonk's Adventure	58	-1	Cobra Triangle	4	0
Bad News Baseball	5	-1	Boulder Dash	7	+1	Codename: Viper	4	0
Bad Street Brawler	4	0	Boy and His Blob, A	6	0	Color A Dinosaur	15	+1
Balloon Fight	8	+1	Break Time	6	+2	Commando	4	0
Bandit Kings of Ancient China	26	-12	Breakthru	3	-1	Conan	12	+1
Barbie	5	-1	Bubble Bath Babes	600	+145	Conflict	7	+1
Bard's Tale	7	-1	Bubble Bobble	13	0	Conquest of the Crystal Palace	5	0
Base Wars	6	0	Bubble Bobble 2	106	+10	Contra	16	0
Baseball	4	0	Bucky O'Hare	13	0	Contra Force	31	-4

Cool World	10	0	Dragon Warrior 2	18	0	Gauntlet (unlicensed)	5	0
Cowboy Kid	21	+3	Dragon Warrior 3	27	-1	Gauntlet 2	5	0
Crash a/t Boys Street Challenge	11	+3	Dragon Warrior 4	35	-1	Gemfire	20	+1
Crash Dummies, Incredible	9	0	Dragon's Lair	8	0	Genghis Kahn	9	-1
Crystal Mines	14	-4	Duck Hunt	4	-1	George Foreman KO Boxing	5	+1
Crystalis	9	+1	Duck Tales	9	0	Ghost Lion	13	+1
Cyberball	4	0	Duck Tales 2	38	+3	Ghostbusters	8	+1
Cybernoid	3	-1	Dudes with Attitude	5	0	Ghostbusters 2	6	0
Dance Aerobics	5	+1	Dungeon Magic	5	0	Ghosts 'N Goblins	6	0
Danny Sullivan's Indy Heat	8	+2	Dusty Diamond's All Star Softball	22	-4	Ghoul School	9	+1
Darkman	5	+1	Dyno Warz	3	-1	Gilligan's Island	7	0
Darkwing Duck	10	+1	Elevator Action	5	0	Goal!	4	+1
Dash Galaxy	4	0	Eliminator Boat Duel	6	0	Goal! 2	10	+1
DayDreamin' Davey	6	0	Empire Strikes Back	12	+2	Godzilla	5	0
Days of Thunder	4	0	Everet/Lendel Top Player's Tennis	4	0	Godzilla 2	23	+1
Deadly Towers	4	+1	Excitebike	7	0	Gold Medal Challenge	9	+2
Death Race	21	-2	Exodus	6	-1	Golf	4	+1
Deathbots	9	0	F-117a Stealth	5	0	Golf Challenge Pebble Beach	4	+1



Defender 2	4	0	F-15 City War	5	0	Golf Grand Slam	5	-1
Defender of the Crown	4	0	F-15 Strike Eagle	5	+1	Golgo 13: Top Secret Episode	4	0
Defenders of Dynatron City	8	0	Family Feud	10	+1	Goonies 2	4	0
Déjà Vu	5	-1	Fantastic Adv. Dizzy (Aladdin)	13	0	Gotcha!	4	+1
Demon Sword	4	0	Fantastic Adventures of Dizzy	8	0	Gradius	6	+1
Desert Commander	4	0	Fantasy Zone	8	0	Great Waldo Search	8	+2
Destination Earthstar	3	0	Faria	25	-3	Greg Norman's Golf Power	6	+1
Destiny of an Emperor	10	+1	Faxanadu	5	+1	Gremlins 2	6	0
Dick Tracy	4	0	Felix the Cat	11	0	Guardian Legend	5	0
Die Hard	23	-2	Ferrari Grand Prix	5	0	Guerilla War	5	-1
Dig Dug 2	5	0	Fester's Quest	3	0	Gumshoe	5	0
Digger T. Rock	5	0	Final Fantasy	13	+1	Gun Nac	25	-6
Dino Riki	4	+1	Fire and Ice	34	0	Gunsmoke	8	0
Dirty Harry	5	+1	Fire Hawk	6	+1	Gyromite	4	0
Disney Adventure Magic Kingdom	5	0	Fisher Price Firehouse Rescue	5	-1	Gyruss	4	0
Dizzy the Adventurer (Aladdin)	20	0	Fisher Price I Can Remember	4	-1	Harlem Globetrotters	5	+1
Donkey Kong	13	0	Fisher Price Perfect Fit	4	-1	Hatriss	11	0
Donkey Kong 3	8	-1	Fist of the North Star	5	0	Heavy Barrel	4	0
Donkey Kong Classics	11	0	Flight of the Intruder	6	+1	Heavy Shreddin'	4	+1
Donkey Kong Jr.	9	0	Flintstones	9	+1	High Speed	5	0
Donkey Kong Jr. Math	12	0	Flintstones 2 Surprise Dino Peak	172	+32	Hogan's Alley	5	0
Double Dare	6	0	Flying Dragon	4	0	Hollywood Squares	4	-1
Double Dragon	8	0	Flying Warriors	5	0	Home Alone	6	0
Double Dragon 2	7	0	Formula One: Built to Win	7	0	Home Alone 2	4	+1
Double Dragon 3	9	0	Frankenstein	10	+2	Hook	4	-1
Double Dribble	4	0	Freedom Force	5	0	Hoops	4	+1
Double Strike	5	-1	Friday the 13th	5	0	Hot Slots	650	+40
Dr. Chaos	4	0	Fun House	5	0	Hudson Hawk	5	0
Dr. Jekyll & Mr. Hyde	4	0	G.I. Joe: A Real American Hero	18	0	Hunt for Red October	4	+1
Dr. Mario	6	0	G.I. Joe: Atlantis Factor	15	0	Hydlide	4	+1
Dracula	13	+1	Galactic Crusader	26	+1	Ice Climber	8	0
Dragon Fighter	12	-12	Galaga	7	0	Ice Hockey	4	0
Dragon Power	4	0	Galaxy 5000	10	-1	Ikari Warriors	5	+1
Dragon Spirit	4	0	Gargoyle's Quest 2	10	0	Ikari Warriors 2	5	+1
Dragon Warrior	5	+1	Gauntlet (licensed)	5	0	Ikari Warriors 3	7	0

Image Fight	5	+1	Legacy of the Wizard	4	+1	Micro Machines (Aladdin)	13	0
Immortal	5	0	Legend of Kage	4	-1	MIG-29	5	+1
Impossible Mission 2 (AVE)	11	0	Legend of Zelda	11	0	Might & Magic	22	+3
Impossible Mission 2 (SEI)	12	0	Legendary Wings	5	+1	Mighty Bombjack	4	-1
Indiana Jones: Crusade (Taito)	14	0	Legends of the Diamond	6	-1	Mighty Final Fight	23	-2
Indiana Jones: Crusade (UBI)	32	+9	Lemmings	16	+1	Mike Tyson's Punch-Out!!	15	-1
Indiana Jones: Temple (Mindscp)	5	-1	L'Empereur	23	+1	Millipede	5	0
Indiana Jones: Temple (Tengen)	6	+1	Lethal Weapon	9	+2	Milon's Secret Castle	4	0
Infiltrator	4	0	Life Force	6	+1	Miracle Piano System	9	0
Iron Tank	4	0	Linus Spacehead	20	-2	Mission Cobra	16	+6
Ironsword: Wizards & Warriors 2	4	0	Linus Spacehead (Aladdin)	11	-1	Mission: Impossible	4	0
Isolated Warrior	6	-1	Little League Baseball	8	0	Monopoly	5	0
Ivan Stewart's Super Off Road	7	+1	Little Mermaid	7	+1	Monster in My Pocket	8	0
Jack Nicklaus' 18 Holes of Golf	4	+1	Little Nemo	6	0	Monster Party	4	0
Jackal	4	-1	Little Ninja Brothers	14	-1	Monster Truck Rally	7	0
Jackie Chan's Action Kung Fu	11	+2	Little Samson	87	+3	Moon Ranger	52	+8
James Bond Jr.	8	+2	Lode Runner	6	+1	Motor City Patrol	13	-1
Jaws	5	0	Lolo	7	0	Ms Pac-man (Namco licensed)	15	0
Jeopardy!	4	0	Lolo 2	16	+2	Ms Pac-man (Tengen unlicensed)	12	-1
Jeopardy! 25th Anniversary	4	0	Lolo 3	21	-2	MULE	14	0
Jeopardy! Junior	4	0	Lone Ranger	9	+1	Muppet Adventure	4	0
Jeopardy!, Super	4	0	Loopz	4	0	MUSCLE	5	+1
Jetsons	22	0	Low G Man	3	-1	Mutant Virus	5	-1
Jimmy Connors Tennis	18	+3	Lunar Pool	4	0	Myriad 6 in 1	985	+85
Joe and Mac	6	0	Mach Rider	4	0	Mystery Quest	4	0
John Elway's Quarterback	3	0	Mad Max	5	0	NARC	4	0
Jordan vs. Bird: One on One	4	+1	Mafat Conspiracy	4	0	NES Open Golf	4	-1
Joshua	14	+2	Magic Darts	5	+1	NFL Football	4	+1
Journey to Silius	6	0	Magic Johnson's Fast Break	3	0	Nigel Mansell's World Ch.Racing	5	0
Joust	4	0	Magic of Scheherazade	6	0	Nightmare on Elm Street	13	0
Jungle Book	10	-1	Magician	12	+2	Nightshade	6	0
Jurassic Park	5	0	Magmax	4	0	Ninja Crusaders	6	-1
Kabuki Quantum Fighter	4	0	Major League Baseball	3	0	Ninja Gaiden	6	0
Karate Champ	4	0	Maniac Mansion	10	+1	Ninja Gaiden 2	6	0
Karate Kid	4	0	Mappyland	6	0	Ninja Gaiden 3	18	+1
Karnov	5	0	Marble Madness	5	0	Ninja Kid	5	0
Kick Master	6	0	Mario Brothers	12	+1	Nobunaga's Ambition	7	-1
Kickle Cubicle	9	+1	Mario Is Missing	14	-1	Nobunaga's Ambition 2	17	-5
Kid Icarus	12	0	Mario's Time Machine	31	+1	North and South	15	-1
Kid Klown	18	+4	Master Chu and the Drunkard Hu	17	+3	Operation Secret Storm	32	-11
Kid Kool	5	+1	Maxi 15	40	-10	Operation Wolf	4	0
Kid Niki	5	0	MC Kids	9	0	ORB-3D	3	-1
King Neptune's Adventure	48	+2	Mechanized Attack	9	+1	Othello	4	0
King of Kings	6	0	Mega Man	19	0	Overlord	9	+1
King's Knight	4	0	Mega Man 2	11	+1	Pac-Man (Namco)	12	0
Kings of the Beach	4	0	Mega Man 3	9	-1	Pac-Man Tengen licensed	8	+1
King's Quest 5	11	0	Mega Man 4	13	0	Pac-Man Tengen unlicensed	8	+1
Kirby's Adventure	9	0	Mega Man 5	25	0	Pac-Mania	11	-1
Kiwi Kraze	7	-1	Mega Man 6	16	-2	Palamedes	4	-1
Klash Ball	6	0	Menace Beach	48	-10	Panic Restaurant	73	0
Klavx	5	0	Mendel Palace	5	+1	Paperboy	9	0
Knight Rider	4	0	Mermaids of Atlantis	24	-2	Paperboy 2	12	+1
Krazy Kreatures	7	+1	Metal Fighter	10	0	Peek A Boo Poker	681	0
Krion Conquest	7	0	Metal Gear	6	0	Pestermator	24	-4
Krusty's Fun House	6	0	Metal Mech	5	+1	Peter Pan and the Pirates	6	+1
Kung Fu	5	0	Metal Storm	17	+2	Phantom Fighter	4	0
Kung Fu Heroes	3	-1	Metroid	8	0	Pictionary	4	0
Laser Invasion	6	+1	Michael Andretti's World GP	5	+1	Pinball	4	0
Last Action Hero	6	-3	Mickey Adventure in Numberland	15	0	Pinball Quest	4	0
Last Ninja	8	+1	Mickey Mousecapade	4	0	Pinbot	4	+1
Last Starfighter	5	0	Mickey Safari in Letterland	8	+1	Pipe Dream	5	0
Lee Trevino's Fighting Golf	3	0	Micro Machines	13	-2	Pirates!	9	0

Platoon	4	+1	RoadBlasters	4	0	Smash TV	6	+1
Play Action Football	3	0	Robin Hood: Prince of Thieves	4	0	Snake Rattle 'N Roll	5	-1
Popeye	8	+1	Robocop	3	0	Snake's Revenge	8	-1
POW	5	+1	Robocop 2	6	+1	Snoopy's Silly Sports	6	0
Power Blade	6	+1	Robocop 3	10	+3	Snow Brothers	52	-1
Power Blade 2	43	+11	Robodemons	14	+3	Soccer	5	+1
Power Punch 2	12	+1	RoboWarrior	4	0	Solar Jetman	3	-1
Pradikus Conflict	33	+5	Rock N' Ball	4	0	Solitaire	21	0
Predator	5	0	Rocket Ranger	4	+1	Solomon's Key	5	0
Prince of Persia	9	0	Rocketeer	4	0	Solstice	4	0
Princess Tomato	25	-1	Rockin' Kats	12	-1	Space Shuttle	6	0
Pro Sport Hockey	20	+1	Rocky and Bullwinkle	5	-1	Spelunker	5	0
Pro Wrestling	4	0	Roger Clemens Baseball	3	-1	Spider-Man: Sinister Six	6	-1
Pugsley's Scavenger Hunt	13	0	Rollerball	4	+1	Spiritual Warfare	9	0
Punch-Out!!	10	0	Rollerblade Racer	5	0	Spot	4	0
Punisher	7	0	Rollergames	4	+1	Spy Hunter	4	0
Puss 'N Boots	7	+2	Rolling Thunder	4	0	Spy vs. Spy	5	0
Puzzle	8	-3	Romance o/t Three Kingdoms	9	+2	Spoon	13	0



Puzznic	8	0	Romance o/t Three Kingdoms 2	21	0	Stack Up	20	+2
Pyramid	9	-1	Roundball	4	-1	Stadium Events	1204	0
Q*Bert	6	0	Rush N' Attack	4	0	Stanley	7	+2
Qix	17	+3	Rygar	6	0	Star Force	5	0
Quattro Adventure	6	+1	SCAT	13	0	Star Soldier	3	0
Quattro Adventure Aladdin	15	0	Secret Scout	68	-10	Star Trek: 25th Anniversary	7	-1
Quattro Arcade	9	+2	Section Z	3	0	Star Trek: The Next Generation	9	+1
Quattro Sports	5	+1	Seicross	4	0	Star Voyager	4	0
Quattro Sports Aladdin	14	+1	Sesame Street 1-2-3	4	+1	Star Wars	9	+1
R.B.I. Baseball 2	7	+2	Sesame Street 1-2-3/A-B-C	6	+2	Starship Hector	4	-1
R.B.I. Baseball 3	9	+4	Sesame Street A-B-C	4	0	StarTropics	5	+1
R.B.I. Baseball licensed	5	0	Sesame Street Countdown	5	0	Stealth	3	-1
R.B.I. Baseball unlicensed	8	0	Shadow of the Ninja	8	0	Stinger	4	0
R.C. Pro-Am Racing	5	0	Shadowgate	5	0	Street Cop	13	+2
R.C. Pro-Am Racing 2	28	0	Shatterhand	7	0	Street Fighter 2010	4	-1
Race America, Alex DeMeo's	14	+3	Shingen the Ruler	5	+1	Strider	4	0
Racket Attack	3	0	Shinobi	7	0	Stunt Kids	16	0
Rad Gravity	6	+1	Shockwave	8	-1	Sunday Funday	50	+9
Rad Racer	4	0	Shooting Range	7	0	Super C	12	0
Rad Racer 2	4	0	Short Order/Eggsplode	8	+1	Super Cars	9	0
Rad Racket	27	-8	Side Pocket	4	+1	Super Dodge Ball	11	-1
Raid 2020	8	-1	Silent Assault	9	+2	Super Glove Ball	3	-1
Raid on Bungeling Bay	9	+4	Silent Service	4	0	Super Mario Brothers	6	-1
Rainbow Islands	19	+1	Silk Worm	6	0	Super Mario Brothers 2	12	0
Rally Bike	5	-2	Silver Surfer	6	-1	Super Mario Brothers 3	11	0
Rambo	4	0	Simpsons: Bart vs. The World	6	0	Super Mario/Duck Hunt	6	0
Rampage	6	0	Simpsons: Radioactive Man	8	0	Super Mario/Duck Hunt/WCTM	5	0
Rampart	6	+1	Simpsons: Space Mutants	6	0	Super Pitfall	5	-1
Remote Control, MTV's	3	0	Skate or Die	4	+1	Super Spike V'Ball	4	0
Ren and Stimpy: Buckaroos	9	0	Skate or Die 2	4	0	Super Spike V'Ball/World Cup	5	0
Renegade	4	0	Ski or Die	4	0	Super Sprint	4	0
Rescue: Embassy Mission	3	-1	Skull and Crossbones	5	0	Super Spy Hunter	8	0
Ring King	5	0	Sky Shark	4	0	Super Team Games	5	0
River City Ransom	15	+1	Skykid	5	0	Superman	9	+1
Road Runner	6	+1	Slalom	4	0	Swamp Thing	12	-2

Sword Master	16	+4	Toobin'	7	-1	Wheel of Fortune: Family Edition	4	0
Swords & Serpents	4	0	Top Gun	4	+1	Wheel of Fortune: Junior Edition	4	0
T&C Surf Design	4	0	Top Gun 2	3	0	Wheel of Fortune: Vanna White	4	-1
T&C Surf Design 2 Thrillas Surfari	9	+1	Total Recall	4	0	Where in Time/Carmen Sandiego	5	0
Taboo: The Sixth Sense	4	+1	Totally Rad	4	-1	Where's Waldo?	5	0
Tag Team Wrestling	3	0	Touchdown Fever	4	0	Who Framed Roger Rabbit?	5	0
Tagin' Dragon	14	-13	Toxic Crusader	9	+1	Whomp 'Em	7	0
Talespin	5	0	Track and Field	5	-1	Widget	11	+2
Target: Renegade	4	0	Track and Field 2	4	0	Wild Gunman	10	0
Tecmo Baseball	3	-1	Treasure Master	5	-1	Willow	4	-1
Tecmo Bowl	6	0	Trick Shooting	5	0	Win, Lose or Draw	4	0
Tecmo Cup Soccer	16	+1	Trog	5	0	Winter Games	3	0
Tecmo NBA Basketball	5	0	Trojan	4	0	Wizardry	6	+1
Tecmo Super Bowl	12	-1	Trolls on Treasure Island	11	-2	Wizardry 2: Knight of Diamonds	15	+1
Tecmo World Wrestling	4	+1	Twin Cobra	4	0	Wizards & Warriors	4	0
Teenage Mutant Ninja Turtles	5	0	Twin Eagle	4	-1	Wizards & Warriors 3	11	+1
Teenage Mutant Ninja Turtles 2	9	0	Ultima: Exodus	6	+1	Wolverine	7	0
Teenage Mutant Ninja Turtles 3	14	0	Ultima: Quest of the Avatar	9	+1	World Champ	9	0
Teenage Mutant Ninja Turtles TF	30	+1	Ultima: Warriors of Destiny	18	-3	World Class Track Meet	4	0
Tennis	4	0	Ultimate Air Combat	13	-5	World Cup Soccer	4	0
Terminator	6	+1	Ultimate Basketball	3	0	World Games	5	+1
Terminator 2: Judgement Day	4	0	Ultimate League Soccer	21	+5	Wrath of the Black Manta	3	-1
Terra Cresta	6	-1	Ultimate Stuntman	5	-1	Wrecking Crew	7	+1
Tetris (Nintendo licensed)	7	0	Uncharted Waters	16	-2	WURM	6	+1
Tetris (Tengen unlicensed)	31	+3	Uninvited	16	0	WWF King of the Ring	8	+1
Tetris 2	6	0	Untouchables	7	+1	WWF Steel Cage	4	-1
Three Stooges	6	+1	Urban Champion	4	0	WWF Wrestlemania	3	0
Thunder and Lightning	8	+1	Vegas Dream	3	-1	WWF Wrestlemania Challenge	4	0
Thunderbirds	4	0	Venice Beach Volleyball	7	0	Xenophobe	3	0
Thundercade	4	0	Vice: Project Doom	6	0	Xevious	4	0
Tiger Heli	4	0	Videomation	4	0	Xexyz	4	0
Tiles of Fate	7	-2	Vindicators	3	-1	X-Men	6	+1
Time Lord	3	-1	Volleyball	4	0	Yo! Noid	7	+1
Times of Lore	9	-2	Wacky Races	25	+3	Yoshi	5	0
Tiny Toon Adventures	7	+1	Wall Street Kid	4	0	Yoshi's Cookie	5	0
Tiny Toon Adventures 2	8	+1	Wally Bear and the No! Gang	13	-2	Young Indiana Jones	16	+2
Tiny Toon Cartoon Workshop	6	-1	Wario's Woods	12	-1	Zanac	5	0
To The Earth	4	0	Wayne Gretzky Hockey	5	+1	Zelda 2: The Adventure of Link	9	0
Toki	11	+3	Wayne's World	37	+3	Zen Intergalactic Ninja	9	+1
Tom and Jerry	8	0	WCW: World Champ. Wrestling	6	+1	Zoda's Revenge: StarTropics 2	6	0
Tom Sawyer	4	0	Werewolf	4	0	Zombie Nation	31	+3
Tombs and Treasure	10	+3	Wheel of Fortune	4	-1			



## Don't do it!

This list has been compiled objectively using only information gathered from eBay listings for the last three months. As such, it is presented as a guide by which one may compare game values, but of course individual transactions will vary. Figures are for loose cartridges, and include an adjustment added to the closing price to represent average 'padded' shipping costs that most eBay sellers charge. This data is copyright NintendoAGE.com and may not be reproduced without permission except for personal use.



## RETROZONE PRESENTS 8-BIT XMAS 2009: SNOWBALL FIGHT!!!

> **BRIAN PARKER** *bunnyboy*

It's that special time of year again, a time we spend with friends and family, a time of rejoice and generosity, a time for sipping eggnog whilst warming our socks in front of a toasty fire, and a time for taking a snowball square in the face from your freckle-faced neighbor, Jeffrey. Payback time!

Gather up three of your best (or preferably worst) friends for the newest game by RetroZone, Snowball Fight!!!, a four-player blizzard blast!

Every player is positioned at one side of the screen (top, bottom, left, or right). Each player can throw snowballs at 45 degree angles to their left and to their right, or throw straight by holding down Button A and Button B simultaneously. The object is to score the most points by hitting opponents with snowballs before the timer runs out. When a snowball hits a side with no player, it will bounce. One hit is equal to one point, and if you get hit, you have one second of invulnerability to escape the path of any other incoming projectiles. At the end of the match, the player with the most points wins. In the event of a tie, five seconds are added to the clock, repeatedly, until a victor emerges. A loser can become a winner!

Randomly generated levels include

a forest of trees, which can take hits from a few snowballs before falling over. A few rocks give you permanent cover but also block your throwing paths. Occasionally a snowman will pop up somewhere. Shooting the snowman \*may\* result in one of three power-ups:

1. Fast Ball: Allows a player to throw snowballs at a dizzying rate.
2. Fast Run: Allows a player to run faster, easily dodging incoming snowballs.
3. Triple Ball: Allows a player to throw three snowballs simultaneously. Fill the screen with damage!

Snowball Fight!!! supports 0 to 4 players simultaneously. If you have no friends, you can fill any empty player slots with computer-operated opponents (bots). Bots come in three flavors, each selectable from the main menu using the A Button:

1. Runner: A Runner moves quickly making him difficult to hit. Runners rarely throw snowballs (easy).
2. Thrower: A Thrower will not move as much as a Runner or Robot, but will throw snowballs with greater frequency (medium).
3. Robot: A Robot runs and throws, making him a tough adversary (hard).

**RETROZONE**  
BY: *BUNNYBOY*

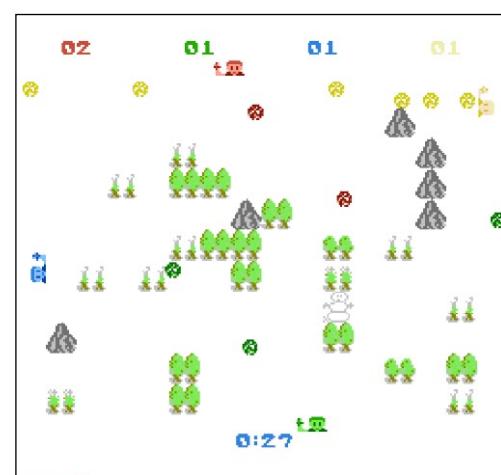
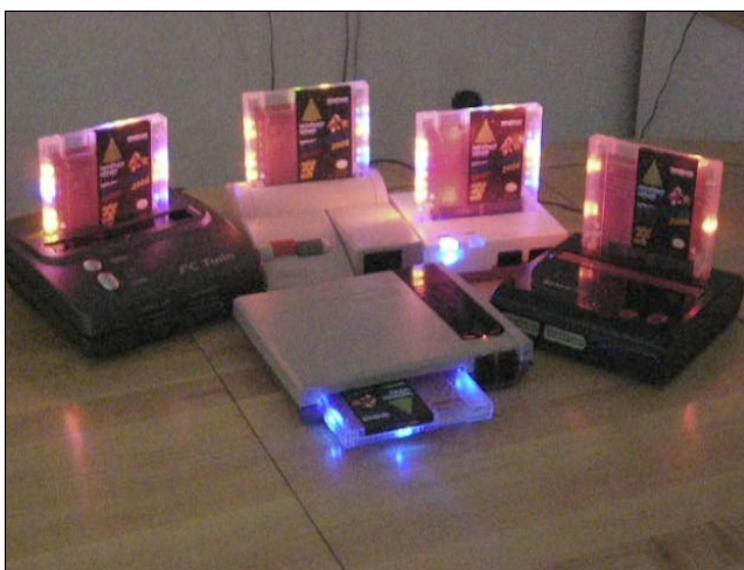
To play three or four players, you must have the NES Four Score or NES Satellite accessories plugged in, otherwise it's a 2-player game, with the left and right slots disabled for humans.

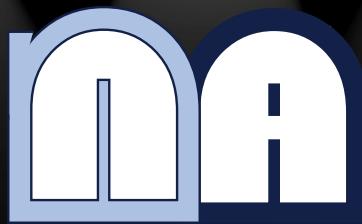
Like the XMAS 2008 cart, this one includes tons of pretty blinky lights! Normally they are set to cycle randomly at a slow speed. Whenever someone scores a point their color stays on. Keep the cart at your color for as long as you can! Three new holiday tunes by the musical genius Kevin Hanley complete the Christmas feeling.

The game also includes an attract mode. Just let it sit for a minute and 4 bots will start battling each other. Start some gambling with your family, or turn it into an eggnog drinking game!

And finally the package comes with personalized text and a printed xmas pinup card. You may want to remove the card and keep it for yourself before sending to your wife or girlfriend...

This cart will be available for a limited time only. After mid December it will be discontinued forever. Buy it at [www.retrousb.com](http://www.retrousb.com) and get your personalized cart asap! If you just want to play the game, the free downloadable ROM will be available at [www.nintendoage.com](http://www.nintendoage.com). This is the complete game without the blinky lights or customized text.





## Member Spotlight: **BUNNYBOY**

**[Name:]** Brian Parker.

**[Age:]** 29, or 157 in bunny years.

**[Location:]** Redwood City, CA.

**[Occupation:]** Bugging Dain about new features, and www.retrousb.com

**[Why did you get into collecting?]** My parents wouldn't let me have any consoles, only computers... so I got my revenge after college, starting in early 2003.

**[Describe your collection.]** Forever incomplete! I have a full cart-only USA set, and I'm working on a CIB set, but that has stalled since buying a house. Now I have the space but no money! I am also very interested in the hardware so I have demo systems, test center items, and the biggest M8 collection known. I only collect for the NES, no other systems.

**[What are the most prized possessions in your collections?]** Products that I designed myself including the PowerPak and SNES PowerPak, Glider written with permission from original author, the NWC Reproduction (which people said wasn't possible), USB CopyNES to help other developers, and the XMAS 2008 and XMAS 2009 just for pure blinky lights.

**[What's the most exciting new**

**product you have been working on?]** The SNES PowerPak! It has been a nine month project to make something that easily beats all other SNES flash carts. The same NES PowerPak ease of use translates to the SNES, but with some hard tech stuff like SDRAM to handle the bigger game sizes. Hopefully the sales will pay for the expensive cart case mold, so reproductions using all new parts will be a possibility. The second most exciting product would be the NA Scoreboard, tentative title, subject to change. All rights reserved, not valid in Puerto Rico.

**[What got you into programming, specifically NES programming?]** Since we didn't have consoles, my brother and I started programming for computers pretty early. Shifting to the NES made sense because it is a system I can understand from top to bottom. For computers nowadays, no programmer really knows what is happening at the lower levels so the NES is more interesting. For something like Glider I can design my own custom hardware and provide all the software, too.

**[What's the best way to find out about the exciting new products from RetroZone?]** I am usually in



the NintendoAGE chat room, and occasionally show future products on the camera... sometimes by accident! Also, Lauren can be seen in chat sometimes, and you can watch her work as she builds the products that are sold on RetroZone.

**[What's your favorite aspect of NintendoAge?]** Decades after the system's release there are still new discoveries being made and being part of a forum where others care about the little details, differences and nuances as much as I do, is great.

**[What's the most disappointing NES game you ever played?]** Zelda 2, because the first was so good and the second got away from what worked. The Game Boy Zeldas got back to the good formula... if only there was some way to play Game Boy games on the NES?

**[Any final comments?]** Please buy my amazingly cool products, my windows leak and I need a new roof next year!

### BUNNYBOY's TOP 5 RECOMMENDATIONS

1. Super Mario Bros., 2. Zelda,
3. Dragon Warrior, 4. Mega Man 2,
5. Where's Waldo?



## REPLACING A NES CARTRIDGE BATTERY WITH A BATTERY HOLDER (2 METHODS)

> **NATHAN LAWS** *dastari*

There are many tutorials online that show one how to replace batteries by using electrical tape to wrap the new battery onto the cartridge and hold it in place. Both methods listed herein differentiate themselves by replacing the battery with a battery holder, which allows for easy replacement of batteries as they wear out and ensures that the battery is always held in rigidly by the design of the holder itself. The first method details how to do this by hot-gluing the battery holder to the bottom side of the NES cartridge. The second method shows how to do this by hot-gluing the battery holder beside the NES cartridge.

Before we begin, a couple of notes: Discussing soldering and desoldering technique is beyond the scope of this tutorial but there are plenty of references on the internet. I frequently recommend optimal tools, but generally whatever you have will do so long as you take care. Finally, please perform these advanced procedures at your own risk.

### Required Materials

The first 11 items are shown in Figure 1 with numbers to show their location. Some of the other materials will be shown in their own sections.

- 1.) 3.8mm Security Bit
- 2.) CR2032 Battery
- 3.) CR2032 Battery Holder
- 4.) Soldering Iron
- 5.) Diagonal Cutter
- 6.) Wire Stripper
- 7.) Hot glue gun (low temp)
- 8.) Solder
- 9.) 22 or 24 AWG Stranded Wire
- 10.) Solder Wick
- 11.) Solder Sucker

Rubbing Alcohol  
Q-Tips (Between 2-6)  
Dremel (Method 1 Only)  
#2-56 x 1/4" screws (Optional – used only if cart screws are lost)  
Needle-Nose pliers (Optional)



### Notes:

The 3.8mm security bit is not available at stores and can only be purchased online. You will almost certainly want some sort of driver that the bit will attach to, so that you can make turning it easier.

Make sure that the CR2032 battery holder is an insertion mount type, rather than a surface mount. A surface mount type would be much more difficult to apply with this method. I use radio shack model 270-009.

You will want a soldering iron with a thin tip so that you only heat the components that you want to heat. If you are not used to soldering or have little confidence in your technique, then I recommend using a 30 or 25 watt iron so that you do not cause damage from heat.

I often employ two different sizes of diagonal cutters. This is because you want a tiny cutter to be able to work within the small confines of the board, but I have only been able to cut through the “prongs” holding the battery on to the circuit board by using a much larger cutter.

Your job will be quicker if your glue gun is the low temp variety. High temp may make a stronger bond, but it also takes much longer to set.

I use 60/40 0.32 diameter rosin-core solder but any small gauge solder should work.

### Method 1

This is my preferred method for replacing the batteries on NES carts with battery holders.

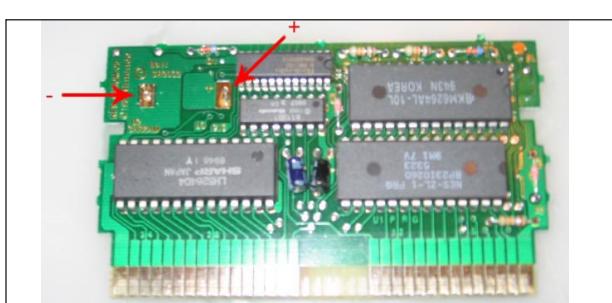
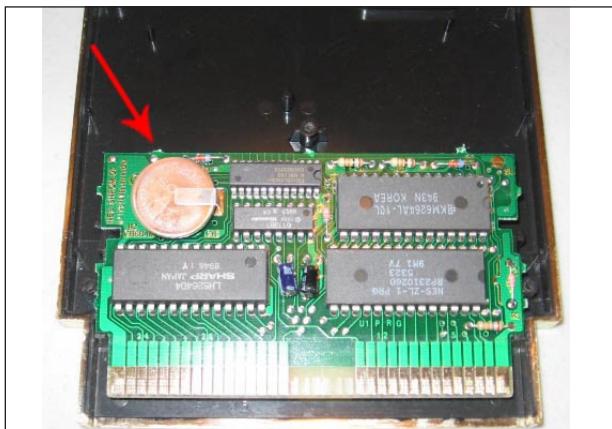
#### 1.) Opening the case

Take your NES security bit and apply it to the NES cartridge screws as shown in Figure 2. Turn counter-clockwise and turn slowly. The screws easily strip out the threads on the cartridge but don’t worry if you do that, we’ll cover a solution later on.



## 2) Removing the battery

After you have removed the security screws, you should be able to locate the battery as shown in Figure 3. Please note that the boards within NES cartridges do vary, but the battery itself will look the same as shown in the picture every time. From hereon we will always refer to this side of the board as the "top." You will note that the battery is held in place by two metal prongs – one below the battery and one above. Take your diagonal cutters and cut both prongs. Take care to remove the battery in such a way that it doesn't touch any part of the board. When you are done, your board should look like it does in Figure 4. At this point, desolder the remains of the prongs. Use your solder wick and solder sucker in combination to remove enough solder to pull these free. The only real thing to keep in mind is that you should not apply heat to the board for extended periods of time as this can only shorten the life of the cart. If you are worried about your technique then I suggest practicing on old circuit boards or buying a demo board from radio shack or some other hardware store.



## 3) Adding the battery holder

Take the CR2032 battery holder and find the end with the two pointed metal terminals that look like legs. Cut about half of the leg off with your diagonal cutters. Then "tin" the leg. Tinning refers to melting a small amount of solder on the leg which will make it easier to solder a wire to it. Now take your battery holder press it up against the edge of the board so that the main circular part of the holder is aligned with the flat edge of the board. I find it best to do this as close as possible to where the battery was positioned on the board in the first place (such as on the left hand side of the board shown in Figure 4). Also make sure that the battery holder's "arm" which holds the battery down is also facing toward you, and that the side of the holder where the arm is mounted is closer to the positive terminal on the board.

Now flip the entire set over so that you are looking at the "bottom" of the board and the battery holder. The previous step of aligning everything while looking at the top of the board can be skipped once you have done this enough times. While holding everything steady, now take your hot glue gun and glue the battery holder to the board. Hold the battery holder in place for some time to allow the glue to dry. Once it is dry you may want to add more glue in various locations to make a stronger hold. Make sure that you provide some support while doing this since the existing glue can be heated up by new glue and become soft again. The finished product should look like Figure 5.

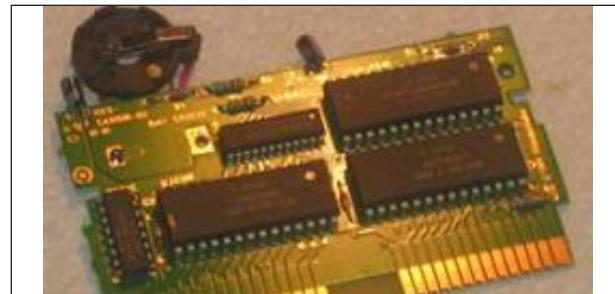


## 4) Wiring the holder

You are now ready to wire from the "+" and "-" terminals of the board shown in Figure 4 to the battery holder. Cut two pieces of wire longer than you think you'll need. Strip back the wire about  $\frac{1}{4}$ " and tin the exposed portion. Place each wire in the "+" and "-" terminals, inserting them from the bottom side of the board so that you can only see a small portion of the tinned wire on the top side of the board. Now flip the board so that the top is facing up and solder the wire in place on the board.

If you have positioned the battery holder as shown in Figure 5 then each wire will connect to the side of the battery terminal closest to it. Now measure how much wire you need from one end to the other, giving yourself about an extra  $\frac{1}{4}$ ". Cut the wire at that point, strip back  $\frac{1}{4}$ ", and tin the exposed wire. Place the tinned portion of the wire against the leg of the battery holder. You should be able to briefly touch them with the soldering iron to cause them to melt together. We do this step this way for speed, so that the glue won't get too hot and go soft.

If you look at the top of the board now, it should look like Figure 6, shown below.



**> battery replace, cont.**

**5) Finishing up**

Now place a battery in the CR2032 battery holder so that the "+" side is facing toward the arm. Place the board back in your NES cartridge shell as it was when you removed it (chips pointing front) and close it up.

**6) Pros and Cons**

The main advantage to this method is that there is no internal pressure in the cartridge. Nothing on the board sticks out enough for you to have to force the two sides of the NES shell together.

One possible con would be the long-term resilience of the hot glue. This method ensures that even if the glue does get soft and the battery holder does become dislodged and "float" inside the cartridge a bit, nothing bad will happen.

**Method 2**

This is not my preferred method but it is tried and true and developed by a professional NES reproduction cart maker. The beginning is identical to steps 1 and 2 for the first method.

**3) Adding the battery holder**

Turn the board so that the bottom is facing you. Place the battery holder on top of the board so that the legs are just hanging off of the longer edge opposite the copper terminals. Place it as near as possible on this edge to the position that the battery originally resided in. Turn the battery holder so that the side where the arm that holds the battery down is closer to the positive terminal on the board as shown in Figure 4.

Now take your hot glue gun and lock it in place. Hold it in place while waiting for the glue to set. The finished product should look like Figure 7 shown below.



**4) Wiring the Battery Holder**

You are now ready to wire from the "+" and "-" terminals of the board shown in Figure 4 to the battery holder. Cut two pieces of wire longer than what you think that you need. Strip back the wire about  $\frac{1}{4}$ " and tin the exposed portion. Place each wire in the "+" and "-" terminals placing them in from the top side of the board so that you can only see a small portion of the tinned wire on the bottom side of the board. Now flip the board so that the facing is facing up and solder the wire in place on the board.

If you have positioned the battery holder as shown in Figure 8 then each wire will connect to the side of the battery terminal closest to it. Now measure how much wire you need from end to the other, giving yourself about an extra  $\frac{1}{4}$ ". Now cut the wire

at that point, strip back  $\frac{1}{4}$ ", and tin the exposed wire. Place the tinned portion of the wire against the leg of the battery holder. You should be able to briefly touch this pair with the solder iron to cause them to melt together. We do this step this way for speed so that the glue won't get to hot and go soft.

If you look at the top of the board now, it should look like Figure 9 shown below.



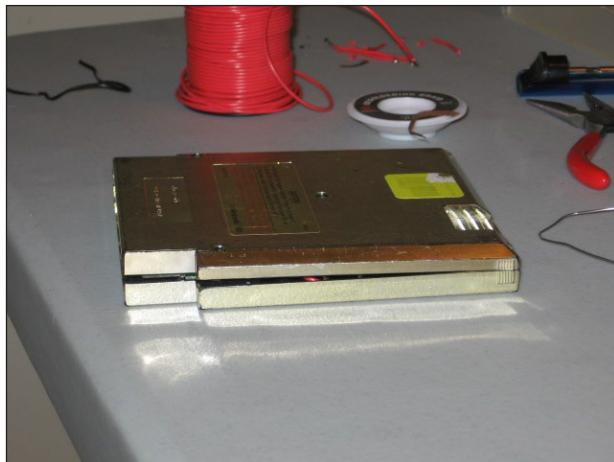
**5) Finishing Up**

Now place a battery in the CR2032 battery holder so that the "+" side is facing toward the arm. Your battery holder has now made the NES board taller so you will have to modify your cart now. As you can see in Figure 10, there are two ridges on the inside of the cart shell. One of these is right above where the battery will reside and will get in the way of the battery. Take your dremel and grind down this ridge. You can see the after picture in Figure 11.



Now you will want to put the two halves of your NES shell together. Note that even with the ridge ground down, the cart will hit against the battery and you may have trouble putting the two halves together. Do not be surprised if you see something like Figure 12 if you are not applying any pressure to the two halves to keep them together.

**> battery replace, cont.**



Take your NES security bit with one hand and force the two halves of the shell together with your others and screw in the security screws. Turn clockwise and turn slowly to prevent stripping the threads in the NES cartridge shell. It is normal for the shell to make a creaking noise whenever you touch it due to the forces on the inside trying to push the two halves apart.

**6) Pros and Cons**

I no longer use this method because I am concerned about the long-term effect that it will have on the shell and board mechanically. Because the shell is plastic, it bows slightly since the battery holder is constantly pressing against it. I fear that cracks will form and eventually the shell might break. It definitely has a bad effect on the threads in the NES carts. Their tendency to strip becomes much higher since the shell is constantly fighting against the screws to snap open and it is difficult to remove the screws slowly enough for this not to become a problem.

The main pro is that this method definitely has far greater mechanical strength with respect to the battery holder. The battery holder is certain to remain in place rigidly on the board with this method.

Thanks to Nesreproductions.com for developing Method 2 which inspired me to create Method 1.



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NintendoAGE eZine Volume 3 Issue 10: Nov. 2009  
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